



**NOAA Teacher at Sea**  
**Heather Diaz**  
**Onboard NOAA Ship DAVID STARR JORDAN**  
**July 6 – 15, 2006**

**NOAA Teacher at Sea: Heather Diaz**

NOAA Ship DAVID STARR JORDAN

Mission: Juvenile Shark Abundance Survey

Day 9: Friday, July 14, 2006

**Science and Technology Log**

I had the opportunity to interview Jason Larese who is aboard for this cruise. He works for the Southwest Fisheries Science Center in La Jolla, which is part of NOAA Fisheries Program. For the past 5 years he has been working with marine mammal studies, especially with dolphins. Recently, he has been working on an albacore tuna tagging project. He analyses data from special tags that record light, depth, and temperature variations which help them to track where the tuna migrate and where/what they eat. Since they know at what depths the tuna feed, they can narrow down the possibilities of what they are eating (since things tend to stay in predictable positions relative to the thermocline in the ocean). He has enjoyed working with the Shark Abundance Survey, but he hopes to return to marine mammal research soon.

They did a swordfish set last night around midnight. We hauled in the set around 6am. We caught 4 makos, 14 blues, and 6 pelagic rays.

We did our first shark set around 8am. We hauled in the set around noon. We caught 3 makos and 2 blues.. During our first shark set today, a small blue shark died on the line. When they did the dissection of his stomach, they found the vertebrae and jaws of a Lizardfish, and several squid beaks. It was very interesting to see what this shark had for breakfast before we caught him. I was able to keep them to share with my class.

We did our second shark set around 2pm. Dr. Heidi Dewar showed me how to take a temperature reading using the Seabird Temperature/Depth



The Seabird Temperature/Depth Profiler is hooked up to a computer so that the information can be converted into a graph. The information is used to identify the thermoclines, and to determine where most of the animals will be found in the water near the ship.

Profiler. It is a small processor in the water-tight tube, which lowered over the side of the boat very slowly, to a depth of about 150 meters. Then, it is raised very slowly. The water-tight tube is then opened in the lab and connected to a computer. The information is then downloaded and imported into Excel, where it is translated into a graph. They use this information to locate the thermocline, since many sea animals are restricted to the thermocline and above where there is a mix of warm and cold water (usually as a result of wind and waves). And, there are fewer animals in the colder temperatures below.

We hauled in the set around 6pm. During this haul, we caught 3 blues and 9 makos. One mako was badly tangled in the line, and he was not going to survive. So, the shark (now that he has died) will be taken back to a lab at SCRIPPS Institute of Oceanography where an MRI study will be conducted to examine the shark's anatomy and physiology. (This is not Russ' study but one of some scientists at SCRIPPS and UCSD Medical school.)

### **Personal Log**

One interesting thing that happened during the first shark set, as we were setting the line, we saw loads of dolphins in the area. They appeared to be circling up fish and then eating them. Several of them were quite close to the ship. We estimated that there were at least 30 dolphins in the area surrounding our ship. We were concerned that they would try to eat our bait and end up getting hooked, but none of them did. It is extremely rare for dolphins to get hooked since they can detect the hook in the bait and avoid it.

We discovered a large mola floating near the ship, and several people tried to catch him with a fishing rod in order to try to tag it with a satellite tag. They weren't able to catch him. Everyone is very interested in the molas, and the scientists here are collaborating on a research study to monitor their behavior and movements. I found out that the mola (an ocean sunfish) actually eat jellyfish. They don't actually eat our bait, so when we catch one, it's always been because the hook got caught in their fin by accident. They are fascinating creatures, and it's amazing to see a fish that is that huge!

I helped wrangle a few sharks this afternoon, but the last one that I did was very strong and I had a hard time holding on to him. At one point, he whipped his head to the side and he yanked on my arm so hard I thought he would break free. It was truly awesome to see just how strong these sharks are, without really even trying. I also spent some time with Natalie Spear who was doing data recording during the second set. I'm amazed at how many pieces of data have to be recorded, and how many things the data recorder has to do at once. It is definitely a more difficult job to do, and with all the commotion of the scientists who are processing the animal and are requesting different things all the time, it takes a very level-head to keep everything straight, especially since accuracy in recording all the different tag numbers is essential. I have been very impressed with all my fellow scientists and their ability to keep up with all the demands of that position. And, they manage to still have fun while doing it!